

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
)	
Second Periodic Review of the)	MB Docket No. 03-15
Commission's Rules and Policies)	
Affecting the Conversion)	
To Digital Television)	
)	

COMMENTS OF HARRIS CORPORATION

Harris Corporation ("Harris") respectfully submits comments in response to the Commission's Notice of Proposed Rulemaking ("*NPRM*") in the above-captioned proceeding concerning the Commission's rules and policies affecting the transition to digital television ("DTV").¹

I. INTRODUCTION AND SUMMARY

Harris is an international communications equipment company with five operating divisions that offer products and services in the microwave, broadcast, network support, secure tactical radio, and government communications systems markets. As the world's leading broadcast transmission equipment supplier, Harris' Broadcast Communication Division is the leader in digital solutions for television broadcasting and has been at the forefront of the transition to digital television, supplying the majority of the DTV transmitters and encoders in the United States.

¹ *In the Matter of Second Periodic Review of the Commission's Rules and Policies Affecting the Conversion to Digital Television*, MB Docket No. 03-15, *Notice of Proposed Rulemaking*, 18 FCC Rcd 1279 (2003).

Harris commends the Commission for its diligent work in ensuring that the transition to DTV is one that is completed as expeditiously as possible and in a manner that serves the best interests of American consumers. We are at a critical juncture in the DTV transition. Sufficient progress has been made regarding high quality and high definition programming content and progressive affordability of DTV products that consumer demand now has the opportunity to drive the DTV transition to a successful conclusion. In this environment, perhaps the most important mission for the Commission is to do everything within its authority to facilitate consumer access to digital television programming, whether received by satellite, cable or over-the-air. The Commission's overarching objective at this stage of the DTV transition is to enable the greatest number of consumers to actually experience digital television, especially HDTV, in the shortest practicable period of time. That is the only way in which there is a reasonable expectation of approaching the December 31, 2006 statutory target for accomplishing the digital television conversion.

Conversely, each day that DTV remains a "promise" and not a "reality" for the consumer – both in terms of availability and quality – the risk of consumer disaffection with DTV increases. Now that consumers are aware of the potential for DTV to revolutionize their viewing experience, neither the industry participants nor the government can risk the alienation that would accompany a failure to meet rising consumer expectations. Harris therefore urges the Commission, when considering possible solutions to remaining obstacles to the transition, to consider carefully whether its decisions will (1) hasten and expand consumer access to DTV signals; and (2) ensure DTV meets consumers' expectations as a "revolutionary" improvement in television.

To meet these goals, Harris urges the Commission to: (1) mandate that cable operators carry both the analog and digital signals (including all multicasts) of all broadcasters within their service area during the transition period; (2) adopt reasonably expeditious maximization and replication deadlines for digital broadcast licensees and, at a minimum, ensure the transmission of digital signals at sufficiently high power to serve viewers within the Grade A contour of their licensed services area as quickly as possible; (3) clarify its rules regarding the availability of digital signals transmitted by broadcasters' repeater and booster facilities; and (4) adopt in its rules the full ATSC A/65B PSIP standard for use by all broadcasters.

II. THE COMMISSION SHOULD MANDATE CABLE CARRIAGE OF BROADCASTERS' ANALOG AND DIGITAL SIGNALS, INCLUDING ALL MULTICASTS, DURING THE TRANSITION

Harris is very cognizant of the myriad obstacles that broadcasters face in the build-out of their stations' digital facilities. One of main impediments holding back many broadcasters—and impeding consumers' accessibility to DTV—is the lack of a Commission mandate requiring cable operators to carry both the analog and digital signals of broadcasters during the transition period.

The vast majority of American television households rely upon cable to deliver broadcast and other programming into their homes. By requiring cable carriage of broadcasters' analog and digital signals during the transition, as well as all multicasts, the Commission would greatly increase consumer access to DTV in the near-term, while providing broadcasters with the flexibility to optimize their utilization of digital technology to enrich the quality of programming they offer to their audiences. The availability of broadcasters' digital programming both over-the-air and on cable systems will generate

consumer awareness about the superiority of DTV in comparison to analog television and will stimulate an increased demand for digital television sets and related digital equipment by consumers. Accordingly, Harris urges the Commission to recognize the unquestioned link between a transitional must-carry regime and the pace of the DTV transition, and adopt a transitional “dual carriage” and “multicast carriage” requirement as soon as possible.

III. MAXIMIZATION AND REPLICATION DEADLINES SHOULD REFLECT THE GOAL OF EXPEDITIOUS COMPLETION OF THE CONVERSION TO DIGITAL TELEVISION. AT A MINIMUM, BROADCASTERS SHOULD SERVE ALL VIEWERS WITHIN THEIR GRADE A CONTOUR AREA WITH DTV SIGNALS AS SOON AS POSSIBLE

Harris supports the Commission’s goal “to ensure that the maximum number of consumers [are] able to receive digital television as quickly as possible while providing broadcasters a realistic timetable for increasing to full power.”² As discussed above, each day that DTV remains a “promise” and not a “reality” for the consumer – both in terms of availability and quality – the risk of consumer disaffection with DTV increases substantially. The Commission must carefully balance the economic concerns of broadcasters with this risk when considering whether and how to adjust the deadlines by which broadcasters will lose interference protection for the unserved areas of their DTV allotment or maximization authorization.

In striking this balance, Harris believes that both the original replication and maximization dates established by the Commission in its First DTV Periodic Review

² *Id.* at ¶ 36.

*Report and Order*³ and the revised replication and maximization deadlines proposed by the Commission in the *NPRM* represent reasonable approaches.⁴ However, in the interests of ensuring access to as many viewers within the broadcaster's viewing area as expeditiously as practicable, we recommend that, if the Commission ultimately adopts its proposed approach, it establish in the same stroke an intermediate requirement that all stations provide a DTV signal of sufficient strength to cover their entire Grade A contour area by a substantially earlier date certain. There is no question that suburban viewers constitute a primary constituency for early and enthusiastic embrace of the digital television experience.⁵ There also is no question that all too many suburban viewers are unable to receive any DTV broadcast signal if the local broadcaster is transmitting at low power, e.g., perhaps technically meeting the community of license coverage requirement currently in force but not serving a broader audience accustomed to receiving over-the-air analog broadcast signals. The vast majority of these suburban viewers would be afforded access to an over-the-air DTV broadcast signal were the Commission to impose an intermediate requirement that broadcasters transmit at sufficient power to reach consumers within the Grade A contour of their licensed service area. Such an intermediate requirement would provide broadcasters with "sufficient time to provide full

³ See, *In the Matter of Review of the Commission's Rules and Policies Affecting the Conversion to Digital Television*, MM Docket No. 00-39, *Report and Order and Further Notice of Proposed Rule Making* 16 FCC Rcd 5946 at ¶ 22 (2001).

⁴ *NPRM* at ¶ 33 ("...we propose to set new replication and maximization protection dates close to the end of the transition: for the top-four network affiliates (i.e., ABC, CBS, Fox and NBC) in markets 1-100 - July 1, 2005; and for all other commercial DTV licensees as well as noncommercial DTV licensees - July 1, 2006.").

⁵ Harris also recognizes the concerns that have been raised by some agricultural and rural groups, who cite low-power DTV transmissions as contributing to the potential disenfranchisement of rural communities from the early stages of the DTV transition. See *ex parte* letter of April 9, 2003, by Larry Mitchell, American Corn Growers Association; see also *ex parte* letter of April 10, 2003, by Paul Clark, National Association of Farmer Elected Committees.

replication and maximization service” while also “ensure[ing] that the maximum number of consumers [are] able to receive digital television as quickly as possible.”⁶

IV. BROADCASTERS NEED CERTAINTY CONCERNING THE AVAILABILITY OF DIGITAL REPEATER OR BOOSTER SIGNALS

In order to fully develop their strategies to complete the construction of their stations’ DTV facilities, broadcasters need a level of certainty that the Commission will adopt rules that will allow broadcasters to use repeaters or boosters to effectively cover the entire area covered under their stations’ digital service contour. Therefore, Harris urges the Commission to quickly clarify the rules for digital repeaters, boosters and distributed transmission systems so that broadcasters can be certain that their digital repeater and booster signals will be available to viewers they serve.

The distributed transmission systems that the Commission proposes in the *NPRM* is a promising technology.⁷ To this end, Harris has been working with the Advanced Television Systems Committee (“ATSC”) to test this technology and to develop specifications for the synchronization of multiple transmitters that emit 8-VSB signals in accordance with ATSC DTV Standard A/53B.⁸ As a result, ATSC has developed a candidate standard⁹ that specifies the parameters for the synchronization of multiple transmitters using transport level mechanisms without altering the signal format emitted

⁶ *Id.* at ¶¶ 32 and 36.

⁷ *See, Id.* at ¶¶ 99-105.

⁸ As the Commission knows, the ATSC A/53B standard was adopted by the Commission in its *Second Report and Order* in the *First Periodic Review*. *See, First Periodic Review Second Report and Order*, 17 FCC Rcd at 16001 at ¶ 50.

⁹ “Synchronization Standard for Distributed Transmission,” Advanced Television Systems Committee, Doc. CS/110A.

from the transmitters and provides for the adjustment of other characteristics carried in the transport structure. While Harris believes that Commission action is not necessary to adopt this candidate standard because such signals will comply with the already-adopted ATSC A/53B standard, Harris does believe that the Commission will need to clarify its rules regarding power levels, interference, and other technical standards for these distributed transmission systems and broadcasters' other DTV repeater or booster facilities.¹⁰

With regard to the appropriate technical standards, Harris believes that the Commission should require that all DTV translators, repeaters or boosters meet the same technical performance requirements as those for higher power DTV transmitters in order to ensure that the integrity of the digital transmission chain down to the consumer is maintained. Thus, manufacturers of DTV translator, repeater or booster equipment should be required to certify compliance with the same technical requirements, and broadcasters should be required to provide the same proofs of performance, for these lower-power radiators as are required for the full power DTV transmitters.

Harris also recommends that the Commission accord broadcasters primary service status and interference protection for their digital boosters or repeaters which transmit within the boundaries of their digital service contours. These multiple repeaters or boosters should be allowed to radiate within a DTV station's licensed digital service contour, at any power level and with any antenna height, as long as it does not result in the transmission of service outside the digital contour. Any translators, repeaters or

¹⁰ In this regard, Harris associates itself with the comments filed in this proceeding by the Advanced Television Systems Committee, Inc.

boosters licensed for DTV operation also should be required to meet the existing DTV emission mask so that integrity of the digital channel allotments and service contours of licensed stations are preserved.

V. THE COMMISSION SHOULD ADOPT THE FULL PSIP STANDARD AND REQUIRE ITS USE BY BROADCASTERS

The Commission asks whether the lack of uniformity in the type of Program System and Information Protocol (“PSIP”) information broadcasters transmit “presents a problematic inconsistency” for receiver manufacturers and consumers.¹¹ While most of the DTV receivers on the market today have been designed to use the PSIP information to locate, recognize and activate certain built-in features, Harris has observed significant variation in the way different brands and models of DTV receivers tune and navigate based on the type of, or the lack of, PSIP information or other program information in the broadcast signal stream. Because different receivers have been designed to operate under different assumptions of what broadcasters intend to carry in the PSIP and program streams, receivers may reboot, lock-up or display blank screens when encountering different stream conditions. As a result, the end user—the consumer—may become confused and frustrated. If the Commission requires broadcasters to include the full PSIP standard as part of their DTV transmissions, then there would be uniformity in PSIP and program stream metadata across all broadcast stations and uniformity in receiver behavior across all channels in a reception area. Furthermore, the tuning and navigation functions of DTV receivers would be predictable regardless of the DTV receiver brand or model.

¹¹ See, *Id.* at ¶ 115. Harris notes that A/65B (March 18, 2003) is the successor to the A/65A PSIP standard.

The *NPRM* asks for comment on whether there are any other aspects of the ATSC standard that may create difficulties if required by the Commission.¹² Based on the experience that Harris has obtained with the deployment of over 180 PSIP systems, Harris is not aware of any difficulties that are experienced by either the broadcaster or the viewing consumer if the ATSC A/65B PSIP standard is properly implemented. Moreover, the PSIP standard also provides an automatic mechanism for avoiding major channel number conflicts. If it does not require broadcasters to transmit the ATSC A/65B PSIP standard, then the Commission or some other organization will need to assign and arbitrate channel number assignments and conflicts.

The *NPRM* also requests information on the costs to broadcast stations to construct PSIP.¹³ Based on Harris' experience as a manufacturer of broadcast station PSIP equipment, it currently would cost a DTV broadcast station \$29,900 for full implementation of PSIP, including all Program and System tables, or \$16,500 for full implementation of the PSIP System tables and limited implementation of the Program tables.

Ensuring that consumers receive DTV services in a manner that avoids confusion and optimizes the reliable operation of the equipment they purchase is a major element of ensuring a satisfactory consumer experience with DTV. To that end, Harris strongly recommends that the Commission adopt the full ATSC A/65B PSIP standard as part of its digital transmission requirements for broadcasters.¹⁴ By mandating the transmission of

¹² See, *Id.* at ¶ 117.

¹³ See, *Id.* at ¶ 118.

¹⁴ See, *Id.* at ¶ 114.

this information by broadcasters in a standardized fashion, the Commission will ensure uniformity and reliability in the operation of consumers' receivers with important DTV-related functionalities and services, including proper channel turning and numbering, closed captioning, v-chip program blocking, and program information and event data, all of which are dependent on PSIP data. Moreover, such standardization will permit consumer electronics manufacturers to easily and inexpensively integrate these important features into their products.

If the Commission decides not to require the transmission of all PSIP information, it should require, at a minimum, broadcasters to include the System Information Component of the PSIP, including the Master Guide Channel (MGT), accurate time in the System Time Table (STT), Virtual Channel Table (STT), Service Location Descriptor (SLD), and any Content Advisory or Caption Service Descriptors.

VI. CONCLUSION

In deciding how to best resolve the remaining issues that will ultimately determine the success of the transition to DTV, the Commission should focus on measures that will increase consumer access to DTV broadcast signals regardless of the delivery system. Conversely, the Commission should be cognizant of the potential for consumer disappointment and disaffection if more consumers are not able to experience the benefits of DTV relatively soon. In this light, Harris urges the Commission to: mandate a dual carriage requirement during the transition period; establish maximization and replication deadlines and, if necessary, higher interim power requirements than currently exist, reflecting the goal of expeditious completion of the conversion to digital television;

create necessary certainty concerning the availability of digital signals transmitted by broadcasters' repeater or booster facilities; and adopt the full A/65B PSIP standard.

Respectfully submitted,

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